

REMARKS

The Office Action mailed April 11, 2005, has been received and reviewed. Claims 1 through 25 are currently pending in the application. Claims 1 through 25 stand rejected. Applicants have amended claims 1, 4-6, 8, 11, 13, 17, 21, 23, and 25, and respectfully request reconsideration of the application as amended herein.

Claim Objections

Claims 2-5, 14-15, 21-22, and 25 were objected to because of various informalities. Applicants have cancelled claims 2 and 3, amended claims 4 and 5, cancelled claims 14 and 15, amended claim 21, and amended claim 25, accordingly. Applicants respectfully request the objections be withdrawn in view of the various amendments.

35 U.S.C. § 102(b) Anticipation Rejections

Anticipation Rejection Based on U.S. Patent No. 5,487,049 to Hang

Claims 1 through 4, 6 and 17 through 25 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Hang (U.S. Patent No. 5,487,049). Applicants respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicants submit that the Hang references does not and cannot anticipate under 35 U.S.C. § 102 the presently claimed invention of independent claims 1, 6, 17, 23 and 25, and claims depending therefrom, because the Hang reference does not describe, either expressly or inherently, the identical inventions in as complete detail as are contained in the claims.

The Office Action alleges:

As per claim 1, Hang teaches, with respect to figure 1, a DRAM 16, a DRAM controller for controlling the DRAM (see column 4, line 30), and a FIFO 10 associated with the DRAM (see column 2, lines 60-63). Hang further teaches at column 3, lines 63-

67, that the data register 30 and address register 34 are two-port memories which can simultaneously write data to a storage location having an address specified by a write count value while reading data from a different storage location having an address specified by a read count value. The claimed “control logic” is represented, at the least, by write counter 22, read counter 26, and state machine 20, as shown in figure 1. The FIFO temporarily stores addresses until a full page worth of data is stored in the data register for transfer to the DRAM. Hang sets forth that the address register FIFO 34 which holds 8 column addresses previously stored associated with data that is to be stored in the data register 30 and DRAM 16. See column 3, lines 62-67, and column 4, lines 26-29. ***Hang teaches that the read counter 26 is incremented upon a particular assertion of DRAMREQ.*** See column 4, lines 24-26. Therefore, ***prior to the read operation, the read counter register is configured to maintain the previous read counter setting.*** (Office Action, pp. 3-4; emphasis added).

Applicants respectfully disagree that the Hang reference anticipates Applicants’ invention as claimed in presently amended independent claims 1, 6, 17, 23, and 25, an exemplary amended independent claim 1 of which reads:

1. A dynamic random access memory device (DRAM), comprising:
at least one memory bank;
control logic associated with the at least one memory bank to control data corresponding to a memory command within the DRAM; and
a FIFO associated with the control logic, the FIFO configured for temporarily storing at least one a memory command until at least one of the data corresponding to the at least one memory command arrives at the DRAM, the at least one memory command including an address within the at least one memory bank, the control logic further configured for simultaneous reading and writing from the FIFO, the control logic further including a read counter associated with the FIFO and configured to ***maintain a previous read counter setting of the read counter during a current reading from the FIFO.*** (Emphasis added.)

In contrast to the elements of the presently claimed invention of exemplary amended independent claim 1, nothing within the Hang reference discloses ***maintaining a previous read counter setting during a current reading from the FIFO***, as uniquely taught by Applicants and claimed within the each of the amended independent claims. The Office Action concedes that “Hang teaches that the read counter 26 is ***incremented upon a particular assertion of***

DRAMREQ. [] Therefore, *prior to the read operation*, the read counter register is configured to *maintain the previous read counter setting.*” (Office Action, p. 4; emphasis added).

In the Office Action’s Response to Arguments section, the Examiner states:

Applicant argues that Hang does not teach “maintaining a previous read counter setting”. However, the term “*maintain*” *has not been further specified* in the claims (e.g. *no indication of when or how long the previous read counter setting is maintained*) and maintaining the previous read counter setting until the assertion of the DRAMREQ signal (as set forth in the rejection) meets the claim limitations. (Office Action, p. 10; emphasis added).

Applicants respectfully assert that the Office Action’s characterization of the disclosure of Hang to be limited to “maintain the previous read counter setting” “prior to the read operation” does not disclose Applicants’ invention as claimed to “*a FIFO . . . to maintain a previous read counter setting during a current reading from the FIFO*” as claimed by Applicants.

Applicants further submit that each pending independent claim includes similar elements.

Therefore, independent claims 1, 6, 17, 23, and 25, and claims 4-5, 7 , 18-22, and 24, depending therefrom, are not anticipate by the Hang reference under 35 U.S.C. § 102. Accordingly, such claims are allowable over the cited prior art and Applicants respectfully request that such rejections be withdrawn.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent No. 5,487,049 to Hang in view of U.S. Patent 5,699,530 to Rust et al.

Claims 5 and 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hang (U.S. Patent No. 5,487,049) in view of Rust et al. (U.S. Patent No. 5,699,530). Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or**

references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 5 and 7 are improper because the elements for a prima facie case of obviousness are not met. Specifically, the rejection fails to meet the criterion that the prior art reference must teach or suggest all the claims limitations.

Regarding claim 5, which depends from amended independent claim 1, Applicants sustain the above-proffered arguments that Hang does not teach, disclose or motivate Applicants' invention as claimed in amended independent claim 1. The Office Action cites the Rust reference for disclosing linear feedback shift registers. However, regarding claim 5, Applicants submit that any proposed combination of the Hang reference and the Rust reference does not teach or suggest the claim limitations calling for "*the control logic further including a read counter associated with the FIFO and configured to maintain a previous read counter setting of the read counter during a current reading from the FIFO*", as claimed by Applicants in amended independent claim 1 from which claim 5 depends. Therefore, Applicants respectfully request that the rejection to claim 5 be withdrawn.

Regarding claim 7, Applicants submit that any proposed combination of the Hang reference and the Rust reference does not teach or suggest the claim limitations calling for "*at least one pointer register configured to maintain a previous read counter setting of the at least one read counter during a current reading from the FIFO*", as claimed by Applicants in independent claim 6 from which claim 7 depends. Therefore, Applicants respectfully request that the rejection to claim 7 be withdrawn.

Obviousness Rejection Based on U.S. Patent No. 5,487,049 to Hang in view of U.S. Patent No. 5,289,584 to Thome et al.

Claims 8 through 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hang (U.S. Patent No. 5,487,049) in view of Thome et al. (U.S. Patent No. 5,289,584). Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 8 through 10 are improper because the elements for a *prima facie* case of obviousness are not met. Specifically, the rejection fails to meet the criterion that the prior art reference must teach or suggest all the claims limitations.

Regarding independent claim 8, from which claims 9 and 10 depend, Applicants sustain the above-proffered arguments that Hang does not teach, disclose or motivate Applicants' invention as claimed. In contrast to the elements of the presently claimed invention of independent claim 8, nothing within the Hang reference discloses "***at least one pointer register configured to maintain a previous read counter setting of the at least one read counter during a current reading from the FIFO***", as uniquely taught by Applicants and claimed in independent claim 8.

The Office Action cites the Thome reference for "teach[ing] a system including a page mode DRAM and a FIFO 114 or 116 (figure 2), which includes a CPU 30, keyboard 80 ("input device"), monitor 64 ("output device") and a hard disk 98 ("storage device"). See figure 1." (Office Action, p. 8). However, regarding claim 8, Applicants submit that any proposed combination of the Hang reference and the Thome reference does not teach or suggest the claim limitations calling for "***at least one pointer register configured to maintain a previous read counter setting of the at least one read counter during a current reading from the FIFO***", as claimed by Applicants in independent claim 8 from which claim 9 through 10 depend. Therefore, Applicants respectfully request that the rejection to claims 8 through 10 be withdrawn.

Obviousness Rejection Based on U.S. Patent No. 5,487,049 to Hang in view of U.S. Patent No. 5,426,612 to Ichige et al.

Claims 11 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hang (U.S. Patent No. 5,487,049) in view of Ichige et al. (U.S. Patent No. 5,426,612). Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 11 and 12 are improper because the elements for a *prima facie* case of obviousness are not met. Specifically, the rejection fails to meet the criterion that the prior art reference must teach or suggest all the claims limitations.

Regarding independent claim 11, from which claim 12 depends, Applicants sustain the above-proffered arguments that Hang does not teach, disclose or motivate Applicants' invention as claimed. In contrast to the elements of the presently claimed invention of independent claim 11, nothing within the Hang reference discloses "***at least one pointer register configured to maintain a previous read counter setting of the at least one read counter during a current reading from the FIFO***", as uniquely taught by Applicants and claimed in independent claim 11.

The Office Action cites the Ichige reference for "teach[ing] that it was known in the art at the time the invention was made to incorporate a FIFO with associated pointer logic on a single semiconductor substrate/wafer. See figures 13-14, column 6 (lines 20-23), and column 22 (lines 37-45). (Office Action, p. 8). However, regarding claim 11, Applicants submit that any proposed combination of the Hang reference and the Ichige reference does not teach or suggest

the claim limitations calling for “*at least one pointer register configured to maintain a previous read counter setting of the at least one read counter during a current reading from the FIFO*”, as claimed by Applicants in independent claim 11 from which claim 12 depends. Therefore, Applicants respectfully request that the rejection to claims 11 and 12 be withdrawn.

Obviousness Rejection Based on U.S. Patent No. 5,487,049 to Hang in view of U.S. Patent No. 6,329,997 to Wu et al.

Claims 13 through 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hang (U.S. Patent No. 5,487,049) in view of Wu et al. (U.S. Patent No. 6,329,997). Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 13 through 16 are improper because the elements for a *prima facie* case of obviousness are not met. Specifically, the rejection fails to meet the criterion that the prior art reference must teach or suggest all the claims limitations.

Applicants have cancelled claims 14 and 15.

Regarding independent claim 13, from which claim 16 depends, Applicants sustain the above-proffered arguments that Hang does not teach, disclose or motivate Applicants’ invention as claimed. In contrast to the elements of the presently claimed invention of independent claim 13, nothing within the Hang reference discloses “*a read counter associated with the FIFO and*

configured to maintain a previous read counter setting of the read counter during a current reading from the FIFO”, as uniquely taught by Applicants and claimed in independent claim 13.

The Office Action cites the Wu reference for “teach[ing] that it was known to incorporate a FIFO on the same substrate with a DRAM. See column 3, lines 8-20). (Office Action, p. 9). However, regarding claim 13, Applicants submit that any proposed combination of the Hang reference and the Wu reference does not teach or suggest the claim limitations calling for “*a read counter associated with the FIFO and configured to maintain a previous read counter setting of the read counter during a current reading from the FIFO*”, as claimed by Applicants in amended independent claim 13 from which claim 16 depends. Therefore, Applicants respectfully request that the rejection to claims 13 and 16 be withdrawn.

CONCLUSION

Claims 2, 3, 14, and 15 have been cancelled. Claims 1, 4-6, 8, 11, 13, 17, 21, 23, and 25 have been amended and are supported by the as-filed specification and drawings and do not add any new matter to the application. Further, the amendments do not raise new issues or require a further search.

Claims 1, 4-13, and 16-25 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'K. Johanson', with a long horizontal line extending to the right.

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Date: July 11, 2005
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Document in ProLaw